

ABSTRACT OF THE DISCLOSURE

In a data reading method according to the present invention, a first reading pulse is applied to a memory cell to generate a first signal corresponding to data stored in the memory cell. Next, reference signal generating data corresponding to a high level side is written to the memory cell. Next, a second reading pulse is applied to the memory cell to generate a second signal corresponding to the reference signal generating data. Next, a reference signal is generated on the basis of the second signal. Then the first signal and the reference signal are compared with each other to determine the stored data stored in the memory cell. In data writing, high-level data is first written to the memory cell without using a bit line. A high-level or low-level signal corresponding to data to be written is applied to the bit line in advance. When a low-level signal is applied to the bit line, low-level data is written from the bit line to the memory cell. Thereby a reading operation margin is dramatically extended to prevent erroneous reading. Also, reading/writing operation can be performed at high speed and with low power consumption.